

California Road Charge Program

Annual Report – Federal Fiscal Year 2022



Submitted By:

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Purpose

This is the fifth annual report, required under Section 5(b) of the FAST Act, STSFA grant agreement entered into between FHWA and the California Department of Transportation (Caltrans). This report describes how the demonstration activities carried out in the year of 2022 with grant funds meet the objectives of the FAST Act STSFA Program.

Background

California's Road Charge Program

As California looks toward a future without gas-powered vehicles, alternative funding sources for our transportation system must be explored. Beginning in 2013, California initiated investigations into a mileage-based user fee. In September 2014, legislation was enacted to conduct a pilot testing road charge as an alternative to the gas tax. The pilot had over 5,000 participants logging over 37 million miles and successfully demonstrating the feasibility of a road charge. However, areas of research remained, with the final report recommending an exploration of pay-at-the-pump opportunities.

The passage of the Road Repair and Accountability Act provided California the opportunity to thoughtfully develop a fair and sustainable transportation revenue mechanism to eventually replace the gas tax. California has relied on the gas tax for 100 years, and a decision to move away from this model must be approached thoroughly and carefully. The Road Charge Program has continued to research the key topics outlined in the STSFA goals including minimizing administrative costs of a road charge system, understanding and enhancing public perceptions of transportation, and demonstrating potential road charge technology mechanisms to ease future adoption.

This year, Caltrans completed the California Road Charge Four-Phase Demonstration that tested the technical feasibility of reporting and assessing road charge across pay-at-the-pump/charge point, usage-based insurance, transportation network companies, and autonomous vehicle platforms. This successful demonstration concluded in 2022 with the final report awaiting approval from the Governor's Office for release.

Most recently, Caltrans launched development of the Public/Private Roads Project, funded by a Round 5 STSFA grant which will test the technical feasibility and identify issues related to road charge assessment on public versus private roads and tribal lands in California. The pilot will go live in March of 2023.

Also in 2022, Caltrans began procurement for its fourth pilot, the Road Charge Collection Pilot, authorized by SB 339 (Wiener, 2021). The Legislature granted Caltrans authority to collect actual revenue from participants in this pilot. Caltrans has applied for an STSFA grant to support this work, and awaits the announcement of grant awards from FHWA.

FHWA FAST Act STSFA Grant Awards

Caltrans was awarded federal grant funding from the Federal Highway Administration (FHWA) under the Fixing America's Surface Transportation (FAST) Act Surface Transportation System Funding Alternatives (STSFA) program in 2016 (Round 1) and 2017 (Round 2). Round 1 has since been completed. In 2018, Caltrans also applied for Round 3 of the STSFA Grant and was awarded funding in early 2019. Round 2 and Round 3 have been combined into California's Four Phase Demonstration project, which was completed in 2022. Caltrans also applied for and received Round 5 funding to support the Public/Private Roads Project, which is currently ongoing with an expected end in 2024.

Below are the primary project objectives from the 2016 STSFA Grant (Round 1):

1. Recruit Consultant Partners
 - a. Solicit interest and select consultant partners that can lead technical effort to differentiate between public and private roads via GPS.
2. Develop Organizational Structure and Compliance Program
 - a. Define organizational structure for California’s road charge program
 - b. Examine and identify improvements to the current gas tax revenue model
 - c. Identify enforcement and compliance strategies
3. Test a Pay-at-the-Pump/Charge Point Model
 - a. Identify technology solutions for a Pay-at-the-Pump/Charging Station model
 - b. Select viable Pay-at-the-Pump/Charging Station software/applications
 - c. Demonstrate the effectiveness of the Pay-at-the-Pump/Charging Station software/applications through internal testing

Below are the primary project objectives from the 2017 STSFA Grant (Round 2):

4. Demonstrate a Pay-at-the-Pump/Charge Point Model
 - a. Test the viability of a Pay-at-the-Pump/Charge point system through a live demonstration and evaluation of new technologies
 - b. Evaluate feasibility, cost effectiveness, and public acceptance of a Pay-at-the-Pump/Charge Point model
 - c. Make recommendations regarding Pay-at-the-Pump/Charge Point implementation
5. Research on Public Attitudes
 - a. Examine public perception of transportation funding and transportation funding alternatives.
 - b. Execute a multi-channel, multi-lingual transportation funding communication and outreach program.
 - c. Evaluate and refine the most effective transportation funding messages and channels.

Below are the primary project objectives from the 2018 STSFA Grant (Round 3):

6. Usage Based Insurance and Road Charge Demonstration
 - a. Demonstrate the feasibility of auto insurance companies (those currently utilizing UBI) acting as CAMs in the collection of a road charge.
 - b. Assess the cost-effectiveness of auto insurance companies (those currently utilizing UBI) acting as CAMs in the collection of a road charge
 - c. Build partner and public awareness of this type of road charge model
 7. Transportation Network Companies and Road Charge Demonstration
 - a. Demonstrate the feasibility of collecting a road charge through transportation network companies
 - b. Assess the cost effectiveness of collecting a road charge through transportation network companies
 - c. Build partner and public awareness of this type of road charge model
 8. Autonomous Vehicles and Road Charge Demonstration
 - a. Identify road charge opportunities that stem from autonomous vehicle usage of California roadways
 - b. Build partner and public awareness of this type of road charge model
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Below are the primary project objectives from the 2020 STSFA Grant (Round 5):

9. Demonstrate the viability of current GPS technology in differentiating between public and private roads.
 - a. Assess the accuracy of GPS technology to accurately differentiate between a public (i.e., Caltrans maintained) road and a private road.
 - b. Show how GPS technologies can differentiate between these road types using commonly accepted map sets.
10. Engage rural communities and more fully understand how road charge uniquely impacts them and what their priorities are in finding solutions. If possible, engage the Native American tribes in the state.
 - a. Identify key concerns from rural and Native American communities as they relate to road charge such as privacy protection, technology ambiguity, privacy protection, and motorist cost implications.
 - b. Recruit members from California’s rural and tribal communities to participate in the demonstration to both educate them on the road charge concept, and also better understand their needs and concerns with California transportation.
11. Examine the current state process for refunding gas tax payments for miles on private roads and determine what elements of the organizational design could be used or need to be changed for a road charge system.
 - a. Explore other state agencies that refund gas tax payments and capture their existing processes and systems.
 - b. Identify key organizational, policy, and technical considerations that could be leveraged for a large-scale road charge program.
12. Continue to build and monitor public awareness of road charge in California.
 - a. Expand public education to rural and tribal communities on how California currently funds transportation, why road charge is being explored, and how these rural and tribal communities can bring forward key policy, operational, and technical considerations.
 - b. Capture rural and tribal specific issues with road charge to help inform Caltrans and other stakeholders on how to improve road charge ubiquity.
 - c. Incorporate key findings from outreach initiatives into larger statewide education campaigns on both transportation funding and road charge.

Grant FFY	STSFA Grants	Est. Cost	Federal Funds	State Funds	State In-Kind Contribution	Projects Completed
2016	Caltrans Award – Round 1	\$1,527,000	\$750,000	\$534,100	\$242,900	Jan. 2019
2017	Caltrans Award – Round 2	\$3,500,000	\$1,750,000	\$750,000	\$1,000,000	Jun. 2022
2018	Caltrans Award – Round 3	\$4,060,000	\$2,030,000	\$940,000	\$1,090,000	Jun. 2022
2020	Caltrans Award – Round 5	\$4,300,000	\$2,150,000	\$1,070,000	\$1,080,000	Ongoing
	Totals	\$13,387,000	\$6,680,000	\$3,294,100	\$3,412,900	

FAST Act STSFA Goals mapped to Caltrans Objectives

The table below summarizes the FAST Act STSFA Goals and maps Caltrans’ program objectives to these goals.

FAST Act STSFA Goals	Caltrans Program Objectives											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Test the design, acceptance, and implementation of 2 or more future user-based alternative revenue mechanisms.		✓	✓	✓	✓	✓	✓	✓	✓	✓		
2. Improve the functionality of such user-based alternative revenue mechanisms.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. Conduct outreach to increase public awareness regarding the need for alternative funding sources for surface transportation programs and to provide information on possible approaches.	✓		✓		✓						✓	✓
4. Provide recommendations regarding adoption and implementation of user-based alternative revenue mechanisms.			✓	✓		✓	✓	✓	✓	✓	✓	✓
5. Minimize the administrative cost of any potential user-based alternative revenue mechanisms.		✓	✓	✓		✓	✓	✓	✓	✓	✓	
6. Minimize the administrative costs associated with the collection of fees.		✓	✓	✓		✓	✓	✓	✓	✓	✓	

Budget Status

Caltrans FFY 2016 STSFA FAST Act Award – Round 1

Complete

Grant FFY	Task	Estimated Cost	Federal Funds	State Funds	State In-Kind Contribution
2016	Total Estimated Cost	\$1,527,000	\$750,000	\$534,100	\$242,900
	Total Expenditures	\$1,359,190	\$557,671	\$452,563	\$348,956
	Balance	\$167,810	\$192,329	\$81,537	-\$106,056
% Expended thru Completion		89%	74%	85%	144%

During 2019, the California projects funded by the STSFA FAST Act 2016 grant (Round 1) concluded and their respective final reports were submitted to FHWA.

The funds from the 2017 STSFA grant (Round 2) and 2018 STSFA grant (Round 3), in addition to the work accomplished through 2016 grant funds were utilized to conduct several comprehensive road charge demonstrations that featured emerging transportation technologies. In 2022, Caltrans completed the California Four-Phase Demonstration that tested how a mileage-based road charge can be assessed through Pay-at-the-Pump/Electric Charge Points, Usage-Based Insurance, Transportation Network Companies, and Autonomous Vehicles. The final results of this demonstration are awaiting approval from the California Governor’s Office.

The following table indicates the total estimated cost for each project, as reflected in Caltrans’ 2017 STSFA FAST Act Grant Proposal.

Caltrans FFY 2017 STSFA FAST Act Award – Round 2

Complete

Grant FFY	Task	Estimated Cost	Federal Funds	State Funds	State In-Kind Contribution
2017	Total Estimated Cost	\$3,500,000	\$1,750,000	\$750,000	\$1,000,000
	Total Expenditures	\$3,680,580	\$1,749,777	\$1,068,173	\$862,629
	Balance	-\$180,802.27	\$223	-\$318,173	\$137,371
% Expended thru Completion		105%	100%	142%	86%

The following table indicates the total estimated cost for each project, as reflected in Caltrans’ 2018 STSFA FAST Act Grant Proposal.

Caltrans FFY 2018 STSFA FAST Act Award – Round 3

Complete

Grant FFY	Task	Estimated Cost	Federal Funds	State Funds	State In-Kind Contribution
2018	Total Estimated Cost	\$4,060,000	\$2,030,000	\$940,000	\$1,090,000
	Total Expenditures	\$3,898,142	\$2,030,000	\$771,296	\$1,096,846
	Balance	\$161,858	\$0	\$168,704	-\$6,846
% Expended thru Completion		96%	100%	82%	101%

The following table indicates the total estimated cost for each project, as reflected in Caltrans' 2020 STSFA FAST Act Grant Proposal.

Caltrans FFY 2020 STSFA FAST Act Award – Round 5

In Progress

Grant FFY	Task	Estimated Cost	Federal Funds	State Funds	State In-Kind Contribution
2020	Total Estimated Cost	\$4,300,000	\$2,150,000	\$1,070,000	\$1,080,000
	Expended thru Sept. 2022	\$2,263,341	\$2,150,000	\$0	\$113,341
	Balance	\$2,036,659	\$0	\$1,070,000	\$966,659
	% Expended thru Sept. 2022	53%	100%	0%	11%

Project Status

Round 1

Round 1 is complete.

Round 2 & 3

Rounds 2 and 3 are complete. The final report detailing the findings is awaiting approval from the California Governor's Office.

Round 5

Innovation and Research

- Began developing the California Public/Private Roads Pilot, a seven-month demonstration for up to 500 participants testing how road charge may impact rural and tribal communities
- Added partnership with the Transportation Corridor Agencies (TCA) to add a subpilot to demonstrate the ability of a tolling agency to serve as a third party account manager
- Began integrating California's pilot data analytics platform, the Platform for Road charge Innovation and Mobility Evolution (PRIME) with backoffice system to explore ways to integrate road charge with tolling
- Deployed California Tribal Public Opinion Polling to capture key concerns with road charge from tribal communities. Subsequent opinion polling efforts targeted towards rural populations and the general public will launch early 2023
- Developed the Evaluation Plan and associated criteria

Technical Design

- Developed the Public/Private Roads Pilot Operating Parameters and Concepts
- Developed the Public/Private Roads Concept of Operations, System Requirement Specifications, Business Rules, Interface Specifications, and Systems Architecture
- Collaborated with Transportation Corridor Agencies (TCA) to create joint data sharing, establish appropriate Application Programming Interfaces (API) and develop a common data dictionary
- Developing a California Road Charge Account Management System

Communications:

- Developed the Communications Plan
- Updated [caroadcharge.com](https://www.caroadcharge.com) program website with information on the Public/Private Roads project, including ability to indicate interest in participating in the 2023 pilot
- Coordinated outreach and engagement with targeted rural and tribal communities and organizations
- Presented to the Caltrans Native American Advisory Council
- Coordinated outreach with multiple tribal organizations
- Attempted partnership with the Indian Health Services to conduct recruiting and outreach
- Coordinated outreach with multiple rural organizations
- Presented to the California State Association of Counties
- Launched the Tribal-focused public opinion survey
- Continued supporting website updates including all RUC America Research Reports
- Report program updates, demonstration status, and research progress to the California Road Charge Technical Advisory Committee

Conclusion and Next Steps

In 2022, Caltrans concluded the drafting of the final report for the Four Phased Demonstration. Caltrans is also working on furthering the road charge concept by launching the most recent grant award to test the viability of current GPS technology to differentiate between public and private roads in a road charge system, the California Public/Private Roads Pilot.

Caltrans also continues to support regional and national road charge initiatives through active participation in the 20-state pooled fund research consortium RUC America, IBTTA, and the Mileage-Based User Fee Alliance.

In 2023, the following high-level tasks will be completed through utilization of the 2020 STSFA Round 5 grant award:

Communications

- Major rural press push in early 2023 to support recruitment.
- Continue engaging rural and tribal communities to inform them of the road charge concept, gather key concerns, and recruit participants for the Public/Private Roads Pilot
- Continue updating and maintaining the road charge website (<https://www.caroadcharge.com>)
- Support ad-hoc communications requests from other state agencies, legislators, the road charge Technical Advisory Committee, and key stakeholders
- Identify trends and knowledge gaps uncovered during surveys, public opinion polls, and focus groups
- Conduct as-needed presentations to statewide organizations on the road charge concept
- Release newsletters, flyers, and frequently asked questions

Innovation and Research

- Continue evaluating potential risks, mitigation strategies, and policy considerations for deploying a road charge program
- Conduct another round of public opinion polling, with emphasis on rural and tribal populations
- Support regional pooled funds studies through RUC America, including study on impact to super commuters
- Advise on California regional congestion pricing initiatives
- Continue supporting national road charge research and policy initiatives
- Collaborate with local agencies and MPOs wanting to further discuss the road charge concept

California Public/Private Roads Project

- Conduct the seven-month California Public/Private Roads Pilot
- Recruit up to 350 participants from rural and 100 from tribal communities
- Recruit up to 50 existing Transportation Corridor Agencies (TCA) customers to support a sub-pilot that integrates road charge with tolling backoffice systems to evaluate how a tolling entity could serve as a road charge commercial account manager
- Continue program communications and supporting ad-hoc discussions and presentations on the road charge concept and the Public/Private Roads Pilot
- Evaluate the Public/Private Roads Project
- Begin drafting the Public/Private Roads Project Final Report
- Continue engaging California Road Charge Technical Advisory Committee on program-related considerations

Road Charge Collection Pilot

- Execute Contract
- Begin pilot development
- Continue communications research